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## (54) Wheel stopping device for baby carriages

(57) A wheel stopping device for baby carriages has a pair of base members 10 securable to the rear legs 2 and rotatably supporting the rear wheels 1, and a spoke member 101 attached to each rear wheel 1. A pair of brake operating levers 20, pivotally attached to respective base members 10, are connected together by a brake rod 30. When the brake rod 30 is stepped on, rotatably displacing the brake operating levers 20, a stopper 24 which extends from each brake operating lever 20 locates between the teeth 101a of the respective spoke member 101 to inhibit the rotation of the rear wheels 1. To release the wheels the brake rod 30 is upwardly displaced by the foot, positional means, stopper 23 and holes 15 and 16, being provided to retain the levers 20 in the braking or non braking positions. The brake rod 30 serves as a bumper when it is in its lower position.

The wheel stopping device when installed on baby carriages with pivoting rear wheels is provided with pivotal connections (40, fig 1) between the levers 20 and rod 30.

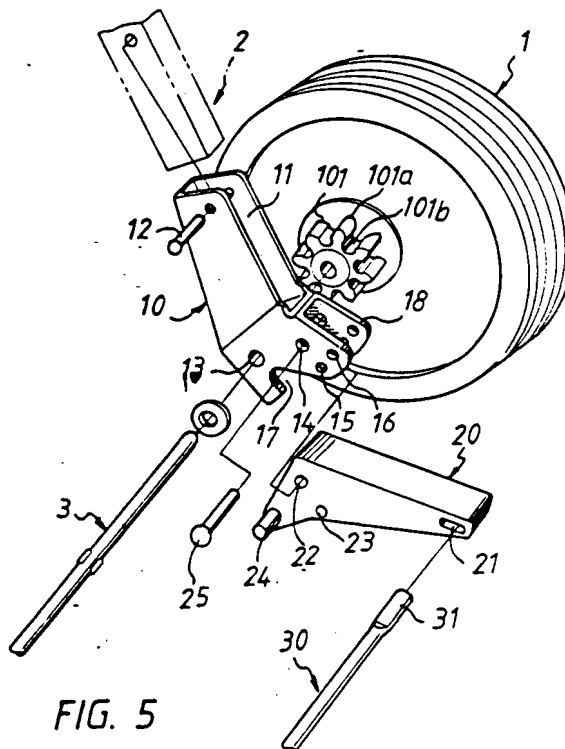
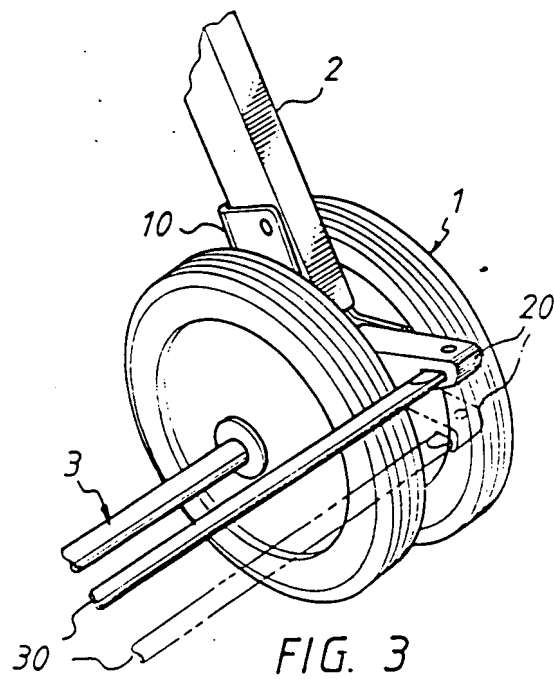
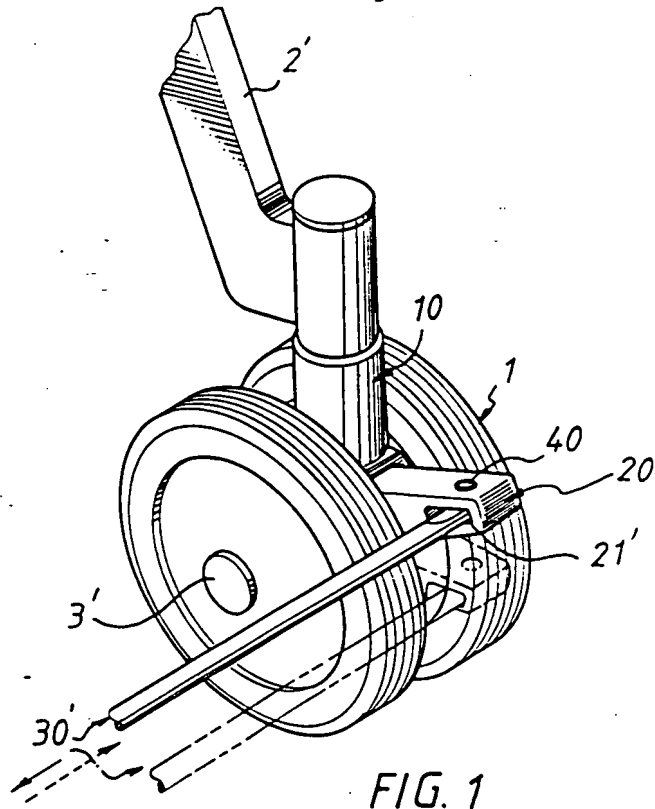


FIG. 5

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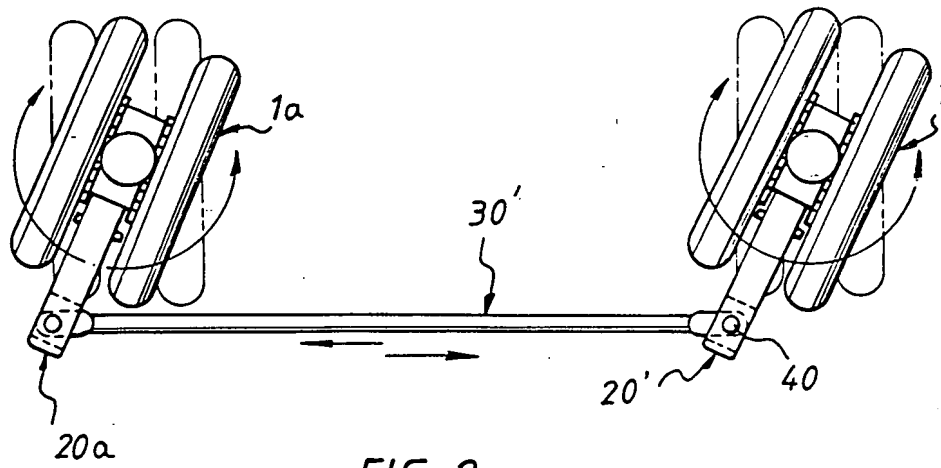


FIG. 2

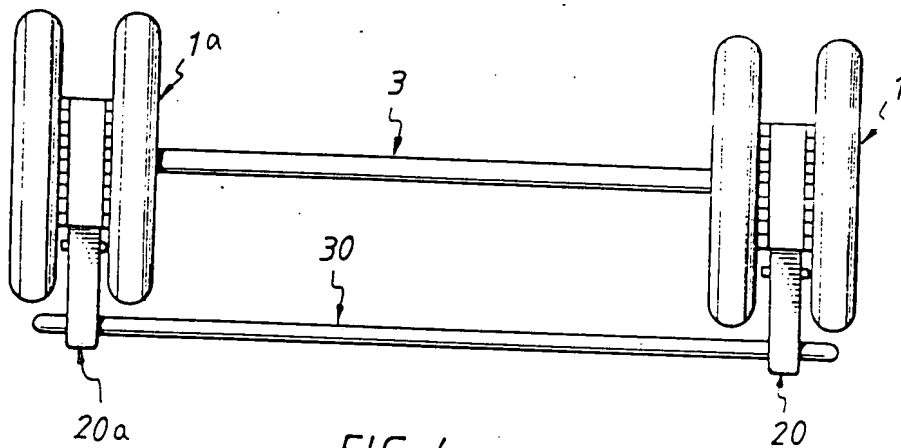
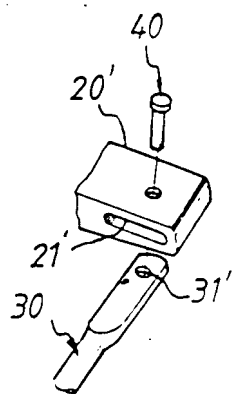
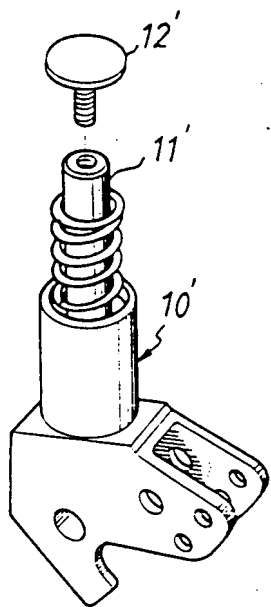
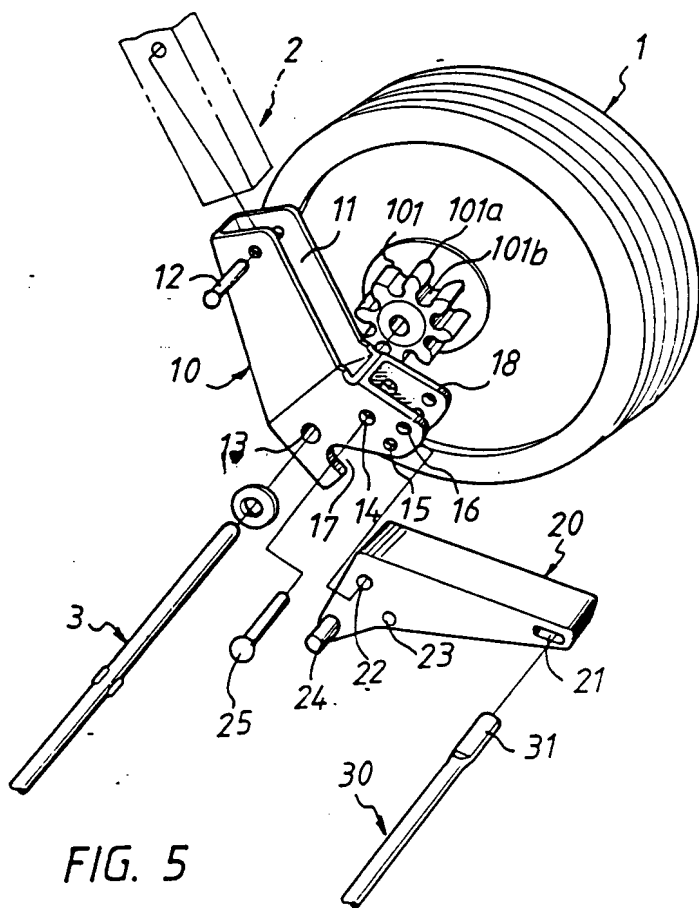


FIG. 4



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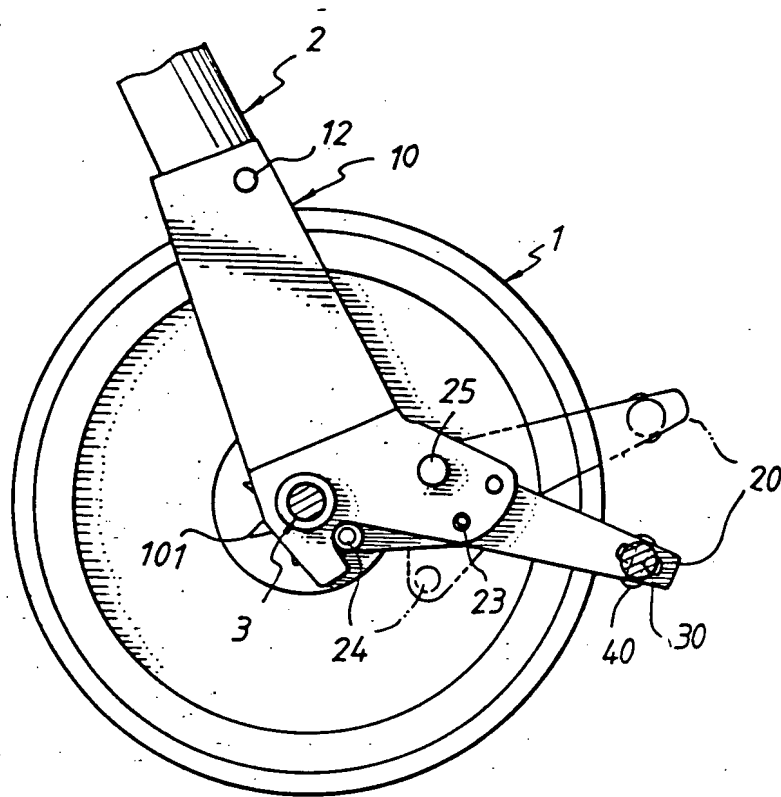


FIG. 7

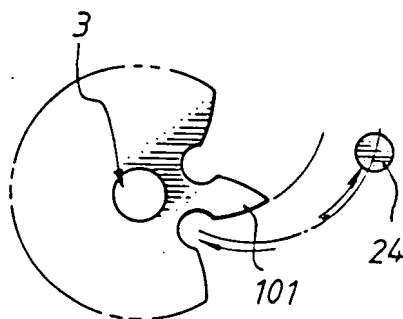


FIG. 7-A

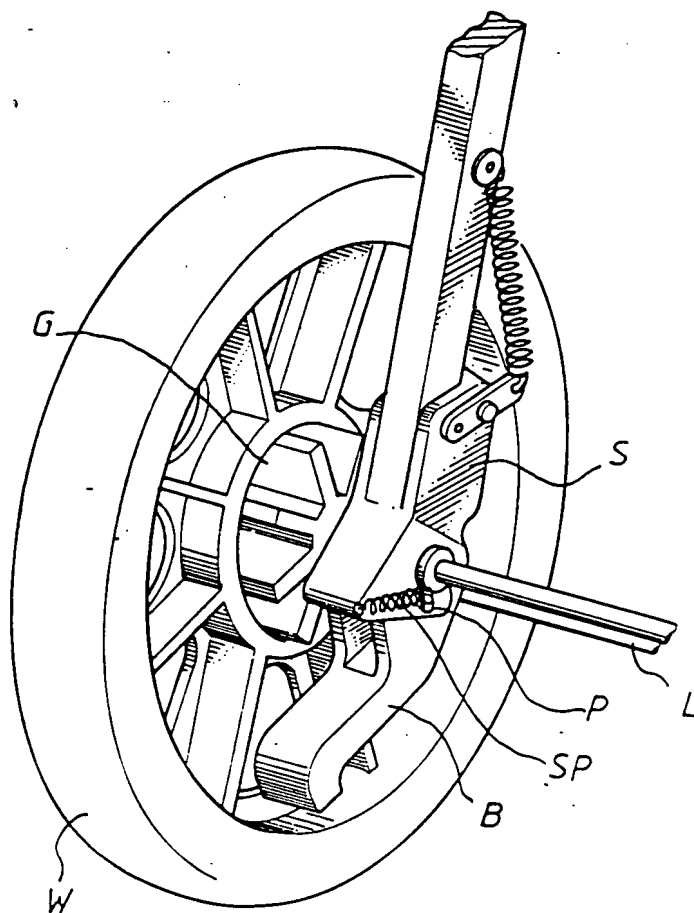


FIG. 8

WHEEL STOPPING DEVICE FOR BABY CARRIAGES

This invention generally relates to hand propelled carts or carriages, and more particularly to a brake apparatus for hand propelled carriages.

5           Braking systems for carriages and carts are known in the art. There are several patents which disclose various hand propelled carriages having brakes.

          Kassai, U.S. Pat. No. 4,714,141 discloses a wheel  
10       stopping device for a baby carriage which has a pair of base members secured to the rear legs; a pair of lever supports; a pair of brake operating levers and a brake rod. When the operating portion of the lever is  
15       stepped on, the journal points lie substantially in a line for providing a self-locking toggle type action pressing the brake rod strongly against the outer  
20       peripheral surface of the rear wheel rims to inhibit the rotation of the rear wheel.

          It is inevitable that such actions wear away the outer peripheral surface of the rear wheel, causing  
20       failure in the long run.

          Laird, U.S. Pat. No. 4,819,767 discloses a brake  
25       apparatus for installation on wheeled trucks of the type having a load supporting frame and at least two laterally opposed support wheels having a fixed  
30       direction supporting the frame for movement over the ground and a hand portion for moving and directing the load supporting frame.

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But it is very expensive and difficult to set up because of its so many parts and its complexity.

Sedlack, U.S. Pat. No. 4,844,209 shows a safety brake for a child's walker which is constructed of a  
5     braking bar pivotally mounted to the base of the walker  
for rotation between a non-braking position above the  
wheels and a braking position whereby a straight  
section of the bar extends below the wheels to lift the  
wheels out of contact with the floor: A releasable  
10    catch on the walker base retains the braking bar in the  
non-braking position, and a spring urges the bar into  
the braking position upon release thereof from the  
catch.

But the braking system in this patent is not  
15   stable for such carts when the terrain is uneven, rough  
on gliding.

Even Kassai, U.S. Pat. Nos. 4,567,964 and  
4,618,033, similar to this invention, shows the wheel  
stopping device respectively associated with the wheels  
20   and interlocked by a wire for transmitting the  
operation of an operating member from one wheel  
stopping mechanism to the other.

It is also inevitable to use many expensive and  
complex parts so that the brakes described in this  
25   patent also have the same problem and disadvantage as  
the U.S. Pat. No. 4,819,767.

The present invention is distinguished over the  
prior art in general, and these patents in particular  
by a brake apparatus which in one embodiment comprises  
30   a pair of base members secured to the rear legs for



rotatably supporting the rear wheels; a pair of spoke members attached to the rear wheel; a pair of brake operating levers secured to the spoke member and to a brake rod extending between and connected to the pair of brake operating levers. When the brake operating lever is stepped on, a stopper extending from the brake operating lever is stretched to the vacant area between the teeth of said spoke member and strongly against the rear wheel to thereby inhibit the rotation of the rear wheel.

It is therefore an object of the present invention to provide an improved hand truck having brake apparatus which will allow the user to brake the baby carriage safely with one foot.

It is another object of this invention to provide a brake apparatus which may be easily installed on existing wheels.

A further object of this invention is to provide a brake apparatus for installation on wheeled baby carriages and cart which may be easily and simply installed and remove from the carriage frame.

A still further object of this invention is to provide a brake apparatus for installation on wheeled baby carriages and carts which is simple in construction, economical to manufacture, and rugged and durable in use.

An other object of the invention is to provide a brake rod for installation on wheeled baby carriages and carts which serves as a bumper in use.

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These objects and other objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of the present invention when taken in conjunction with  
5 the accompanying drawings.

FIG. 1 is a perspective view of a wheel stopping device for baby carriages which is installed on a movable wheel in accordance with the present invention;

FIG. 2 is a schematic plan view of a wheel  
10 stopping device for baby carriages in accordance with FIG. 1;

FIG. 3 is a perspective view of a wheel stopping device for baby carriages which is installed on a wheel having a fixed direction in accordance the present  
15 invention;

FIG. 4 is a schematic plan view of a wheel stopping device for baby carriages which is installed on the wheel having a fixed direction in accordance with the present invention;

FIG. 5 is an exploded drawing of a wheel stopping device for baby carriages which is installed on a movable wheel in accordance with the present invention;

FIG. 6 is a perspective view especially showing the base member which is installed on the movable wheel  
25 in accordance with the present invention;

FIG. 6A is an exploded view especially showing the connection of the brake operating lever and the brake rod which is installed on movable wheel in accordance with the present invention;

FIG. 7 is a side view of a wheel stopping device for baby carriages which is installed on movable wheels  
30 in accordance with the present invention;

FIG. 7A is a side view especially showing the spoke member and the stopper in operation which is installed on a movable wheel; and

FIG. 8 is a perspective view of the traditional art, provided as an example.

#### DETAILED DESCRIPTION

Referring to FIG. 1 which shows a perspective view of the wheel stopping device for baby carriages which is installed on the movable wheels in accordance with the present invention, said wheel stopping device for baby carriages, installed within the dual wheel (1), is comprised of a pair of base members (10'), a pair of brake operating levers (20') and a brake rod (30'). The base member (10'), connecting the ends of the rear legs (2') in a movable manner, is installed together with the axle (3') of wheel (1) and the brake operating lever (20'). A brake rod (30'), connecting to the brake operating lever (20') with a pin (40), is provided to be a movable as shown in FIG. 2. When it is desired to inhibit the rotation of the wheel (1), the brake operating lever (20') or the brake rod (30') is stepped on, whereby the brake operating lever (20') and the brake rod (30') is turned down to serve as a brake device as well as a bumper to protect the baby. When it is desired to cancel the rotation inhibiting state, the brake operating lever (20') and the brake rod (30') is upwardly displaced by the foot. Thereupon, the rotation state is established again.

FIG. 3 is a perspective view of the wheel stopping device for baby carriages which is installed on the wheels having a fixed direction in accordance with the

present invention. FIG. 4 is a latitudinal sectional view of the wheel stopping device for baby carriages which is installed on the wheels having a fixed direction in accordance with the present invention.

5 All of the construction and usage in FIG. 3 and FIG. 4 are same as the previous description in FIG. 1 and FIG. 2 except that the connection, between the base member (10) and rear legs (2) of the rear wheels (1) and  
10 between the brake operating lever (20) and the brake rod (30), are in a fixed position which will be described in detail in the following statement about the FIG. 6 and FIG. 6A.

FIG. 5, described in detail, is an exploded drawing of the wheel stopping device for baby carriages  
15 which is installed on the movable wheel in accordance with the present invention. A spoke member (101) installed on the axle of wheel (1), has a plurality of awl-shaped teeth (101a) with pointed ends and a plurality of vacant areas (101b) having smaller inlets or necks. The rear legs (2) of the rear wheels are  
20 stretched to the chute (11) on the upper end of the base member (10) and connected together with a pin (12). The base member (10) is connected to the spoke member (101) and wheel (1) with a wheel-axle (3) through the axle hole (13) on the base member (10).  
25 The brake operating lever (20) having a hole (22) is connected to the chute (18) on the lower end of the base member (10) by means of pin (25) through the hole (14) on the base member (10) and the hole (22) on the  
30 brake operating lever (20). A brake rod (30) having two rectangular-shaped ends is inserted and fixed to the rectangular-shaped hole (21) on the brake operating lever (20). If the present invention is installed on the movable wheel, it is formed to be a alternative to

the base member (10'), shown in FIG. 6, to replace the original base member (10) shown in FIG. 5; in this state, the rear legs (2) are inserted directly to neck (11') extending from the head of the base member (10') and fixed to the base member (10') with a bolt (12'). On the other hand, it is also provided to be another alternative of the brake operating lever (20') and the brake rod (30'), shown in FIG. 6A, to replace the original parts shown in FIG. 5; in this state, the brake operating lever (20') has a wider rectangular-shaped hole (21') than the width of the rectangular-shaped end (31') of the brake rod (30'), and the brake rod (30') is inserted to the rectangular-shaped hole (21') and fixed to the brake operating lever (20') with a bolt (40) through the hole (22') on the brake operating lever (20') and the hole (32') on the brake rod (30').

Turning back to FIG. 5, when it is desired to inhibit the rotation of the wheel (1), the stopper (24) is pushed down to and against the concave chute (17) on the base member (10) and the positioning stopper, (23) is pushed to the positioning hole (15) on the base member (10) so that the other end of the stopper (24) is pushed against the vacant area (101b) to stop the rotation of the wheel (1) which is shown in FIG. 7 and FIG. 7A.

When it is desired to cancel the rotation inhibiting state, the stopper (24) is pushed up and free from the concave chute (17) on the base member (10) and the positioning stopper (23) is pushed to the positioning hole (16) on the base member (10) so that the other end of the stopper (24) is pushed away from the vacant area (101b) to reestablish the rotational

over

state of the wheel (1) which is also shown in FIG. 7 and FIG. 7A.

FIG. 8 is a perspective view of the traditional art which uses some more complex and expensive parts  
5 than the present invention.

The foregoing description is offered primarily for purposes of illustration. It will be readily apparent to those skilled in the art that further structural and functional variations beyond those described herein may  
10 be made without departing from the spirit and scope of the invention.

CLAIMS

1. A wheel stopping device for baby carriages comprising:

5 a pair of base members, each base member being attached to a lower end of a leg which supports wheels of the carriage;

10 a pair of spoke members, each spoke member attached to a respective wheel having a plurality of awl-shaped teeth with pointed ends and a plurality of vacant areas between two teeth having smaller inlets;

15 a pair of brake operating levers, each brake operating lever being pivotably mounted to a respective base member and having mounted thereon a stopper adapted to be received between teeth of the respective spoke member, each brake operating lever having positioning means adapted to retain the brake operating lever in a braking orientation or a non-braking orientation with respect to the respective base member, and;

20 a brake rod connecting the pair of brake operating levers serving as a braking device for the carriage and being such that upon stepping on the brake rod, the wheels cease rotation.

25 2. A wheel stopping device for baby carriages substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.